



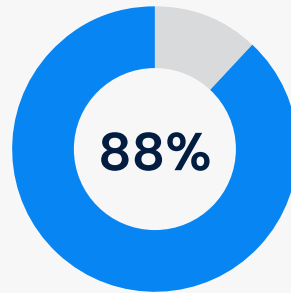
# Data and AI: The top trends shaping government in 2024

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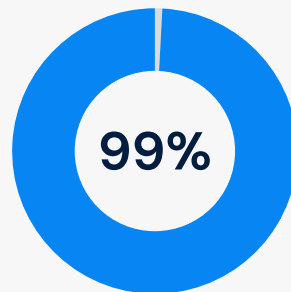
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## Executive summary

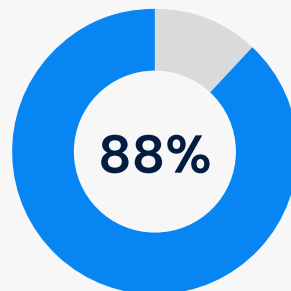
As federal agencies continue their monumental digital modernization journey, a key issue persists. Despite being rich in data, agencies are lagging in their data modernization efforts—ultimately placing mission delivery at stake. Federal leaders need a holistic data optimization approach to effectively leverage emerging technologies and respond to the constantly evolving needs and expectations of U.S. citizens.



report their agency is mostly or completely prepared to use AI as part of its overall data strategy



of mission leaders agree investing in safe and effective AI is essential to fulfilling the mission of their organization



of IT professionals report digital modernization efforts that do not include a domain expert are doomed to fail

Although AI was once seen as a futuristic data management solution, 2023 proved agencies are eager to embrace it as soon as possible. An overwhelming 99% of mission leaders agree investing in safe and effective AI is essential to fulfilling their mission and 88% report their agency is mostly or completely prepared to use AI as part of its overall data strategy.

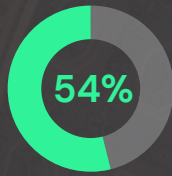
But federal agency employees want to ensure their agency knows what it's getting into, because the results are only as good as the data. More than 3 in 4 are concerned that decision-makers within their organization are rushing to incorporate generative AI without understanding the data needed to ensure its success.

This study reveals the unique perspectives of three critical stakeholders on the front lines of federal data and AI: Those responsible for the data, the technology, and meeting the mission. A key finding? The importance of pairing federal program domain expertise with IT expertise in assembling project teams. 88% of IT professionals report digital modernization efforts that do not include a domain expert are doomed to fail, making it clear that digital modernization teams with extensive knowledge or skills within a specific area or industry create far richer and more effective technology solutions.

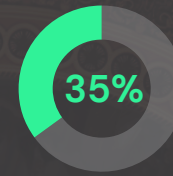
Agencies face challenges as they seek to leverage the enormous amount of data they possess. Targeted investment in technology and strategic partnerships can bring them closer to offering smarter services, more productive and efficient use of data, and an improved customer experience.



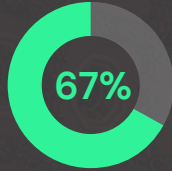
### Data disconnect



54% of mission leaders report that efficiently using data in decision-making is a greater struggle for agencies than collecting high-quality data (46%)



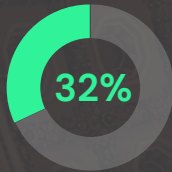
35% Data and analytics professionals report that an average of 35% of data is being underutilized



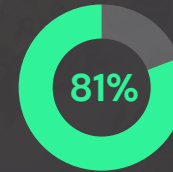
67% of mission leaders report decision-makers are often or always disconnected from the data they need to guide their organizations



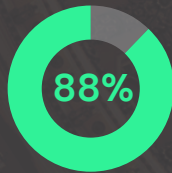
### Digital modernization delays



32% IT professionals report that, on average, 32% of their agency's digital modernization efforts do not include a domain expert



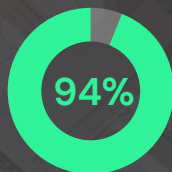
81% of mission leaders report their agency has not achieved major digital modernization goals



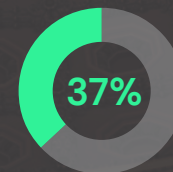
88% of IT professionals agree digital modernization efforts that don't include a domain expert are doomed to fail



### Appetite for AI



94% of data and analytics professionals agree that AI is essential to fulfilling the mission of their organization



37% of mission leaders report their agency is conducting small, controlled tests of generative AI

## Who did we talk to?

We surveyed 500 federal employees, employed full-time, working in technology or IT-focused roles in one of 3 segments: IT professionals, data & analytics professionals, and mission leaders. We queried a mix of GS levels, office sizes, and tenures to paint a picture of data use, modernization progress, and AI perceptions throughout the federal agency landscape.

Here's a breakdown:

### Employee type

**102**

Military

**398**

Civilian

### Role

**176**

IT professionals

**180**

Data and analytics professionals

**144**

Mission leaders

### GS classification

**178**

GS-9/GS-10

**322**

GS-11+

### Years employed by the U.S. federal government

**346**

Less than 10 years

**154**

More than 10 years

### Number of employees in office

**382**

Less than 500

**118**

More than 500

## Decision-makers in a bind

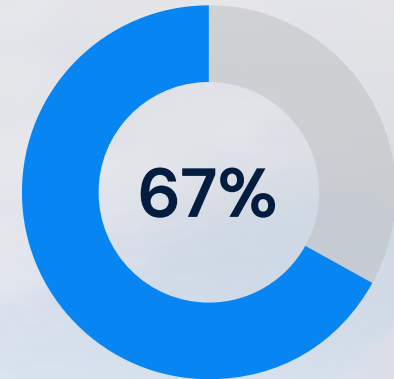
Federal agencies have made tremendous progress in their efforts to overhaul outdated IT systems, but there are still critical data management challenges they must overcome to accomplish their missions.

Two-thirds of mission leaders (67%) report decision-makers are often or always disconnected from the data they need to guide their organization. Lack of access severely compromises the ability to use data to drive informed decisions that ultimately have a positive impact on the citizens and communities they serve.

Another internal drag on projects is a lack of consensus in identifying the primary cause of their data management issues. Mission leaders report efficiently using data in decision-making (54%) is a greater challenge for agencies than collecting high-quality data (46%), but the IT (52%) and data and analytics (53%) professionals see collecting high-quality data as the bigger struggle. Success of the project depends on the various teams being aligned, ideally having someone in place with experience to ensure the most relevant data is being sourced and utilized.

Federal agencies also must contend with a bevy of unique challenges that may undermine their decision-makers' ability to effectively leverage data. The data and analytics professionals cite limited access to data from other agencies or state governments (49%), data being too siloed within their agency (42%), and data being unorganized (37%) as some of the leading issues. **More than 4 in 5 IT professionals (84%) agree people in their agency who need data for decision-making are unsure how to access it.**

**More than 3 in 4 IT professionals (77%) report their agency's data infrastructure is mostly or fully mature. Despite this, about 4 in 5 IT professionals (79%) report their agency has not achieved major digital modernization goals.**



67% of mission leaders report decision-makers are often or always disconnected from the data they need to guide their organization

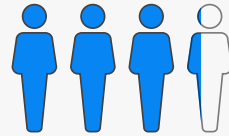


## Data strategy diluted

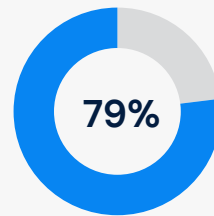
Clean, comprehensive, and accessible data is a catalyst for government service transformation, and the absence of a sound data strategy is a key reason that agencies fail to meet their digital modernization goals. **Mission leaders most often cite insufficient communication between IT leadership and users of data (51%) among the leading data strategy challenges.** While that is not necessarily surprising considering that each team on the project has its own needs, concerns, and goals, it does underscore **the importance of having a domain expert on hand to pave the way for the integration of efforts and desired outcomes.**

Because of their missions, federal agencies cannot simply pause operations until their transition is complete, yet having too much going at once can prove to be problematic. **More than 2 in 5 mission leaders flag continuing to deliver data while upgrades are being made (42%) as a data strategy challenge.**

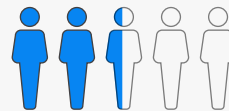
Some of the more fundamental challenges to data strategy success identified by mission leaders are lack of standardization within the organization (40%), people who need data don't have the right tools to use it (32%), and lack of accurate high-quality data (31%). The barriers mean that those utilizing the data are spending valuable time seeking solutions rather than using it to execute strategy to advance their agency's goals.



More than 3 in 4 IT professionals (77%) report their agency's data infrastructure is mostly or fully mature



of IT professionals report their agency has not achieved major digital modernization goals



More than 2 in 5 mission leaders flag continuing to deliver data while upgrades are being made (42%) as a data strategy challenge

## Spotlight: What's the deal with data?

Data is often described as an organization's most important asset. The facts, metrics, and insights gleaned from analyzing data can inform decision-making that aligns an organization's goals, strategies, and initiatives. Mission leaders report their agencies most often use data to enhance productivity (54%), improve transparency (49%), and reduce costs (40%).

To best serve the public, federal agencies have a critical need to make decisions based on the most relevant and accurate information available. Optimizing data usage could also mitigate some of the challenges to objective decision-making such as individual biases, subjective opinions, and political influence. As it stands, a quarter of mission leaders report their agency most often uses data to guide strategy (25%).

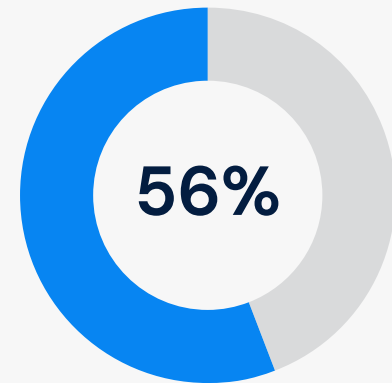
## Spotlight: A look at the federal workforce

Staffing in a shifting environment is a challenge across all industries. For federal agencies, uncertainty abounds as to how digital modernization will impact their workforces and their ability to deliver service.

Federal agencies are competing in a wide-open race to close the talent gap created by digital modernization projects. Non-digitally native employees face a steep learning curve and perhaps time-limited turnaround which may pose a significant problem for federal agencies as more than half their data and analytics professionals (56%) see limited knowledge about use of digital solutions as among the leading talent management challenges.

Establishing a workforce culture that embraces digital modernization is just as important as choosing the appropriate technology. Unfortunately, more than 2 in 5 data and analytics professionals report workers being unable to take the time to reskill (43%) as an issue their agency faces.

But even if reskilling were not a concern, the elevated expectations that often accompany the implementation of digital tech could add to workers' frustration. Nearly half of data and analytics professionals cite workloads causing burnout (46%) as a data strategy challenge for their agency.



of data and analytics professionals see limited knowledge about use of digital solutions as among the leading talent management challenges





## CASE STUDY

### Domain experts help NCI modernize data to fuel cancer research

ICF developed a research data management solution for the National Cancer Institute that ensures speed and quality when handling large volumes of mass spectrometry data in the Clinical Proteomic Tumor Analysis Consortium—and our bioinformatics experts were key to designing an effective solution.

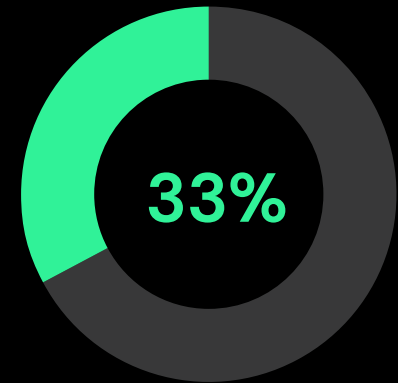
[Read the story](#)



## AI: Essential to modern mission fulfillment

AI's ability to collect and analyze massive amounts of data makes its inclusion in data strategy inevitable. Although artificial intelligence was once seen as a futuristic data management solution, federal agencies are eager to embrace it as soon as possible. An overwhelming 99% of mission leaders agree investing in safe and effective AI is essential to fulfilling the mission of their organization and 88% report their agency is mostly or completely prepared to use AI as part of its overall data strategy.

However, as much as organizations are ready to embrace AI, there are obstacles that could stymie it. **One is that only a third of data and analytics professionals (33%) report their agency has a sufficient supply of workers with the right skills for AI implementation.**



of data and analytics professionals report their agency has a sufficient supply of workers with the right skills for AI implementation

On an even more fundamental level, data management issues represent untenable shortcomings that substantially increase the organization's exposure to risk. Data and analytics professionals cite getting reliable and consistent data (48%), creating an AI governance framework (47%), and regulatory compliance (41%) among the biggest challenges related to AI adoption. These issues must be addressed through effective governance and stewardship for the agencies to capitalize on the value of AI in today's environment.

**Data and analytics professionals (84%) and IT professionals (81%) agree decision-makers at their agency are rushing to incorporate generative AI without understanding the data that is needed to ensure its success.**

While data and analytics and IT professionals agree that investing in AI is critical to achieving their agency's goals, the use of generative AI gives them pause. They are concerned about large-scale generative AI implementation without adequate testing and a general lack of awareness on the part of decision-makers—some of whom are likely to not have a technology or engineering background—about the guardrails that need to be in place.

The federal government stepped in with an Executive Order in 2020 that promotes the use of trustworthy AI and responsible handling and sharing of data among its agencies. The majority of agencies have been building on that as their experience with AI grows. More than half of data and analytics professionals (54%) and mission leaders (53%) report their agencies have or are developing guidelines on how everyone can use generative AI. **Taking an even more proactive step, 37% of mission leaders report their agency is conducting small, controlled tests of generative AI in preparation for more widespread use.** Perhaps more agencies should adopt this approach, borrowing best practices from the software engineering industry to bring automation in data and model validation into their generative AI efforts.



CENTERS FOR DISEASE  
CONTROL AND PREVENTION

## CASE STUDY

# CDC explores the potential of Gen AI

ICF is helping the Centers for Disease Control & Prevention (CDC) evaluate the potential of generative AI to deliver mission benefits. Discover how our AI experts are working with the agency to define appropriate use cases and incorporate AI in safe and effective ways.

[Read the story](#)

Sample #

# 511NY Rideshare

## CASE STUDY

### NYSDOT modernizes data to improve commutes and reduce emissions in New York

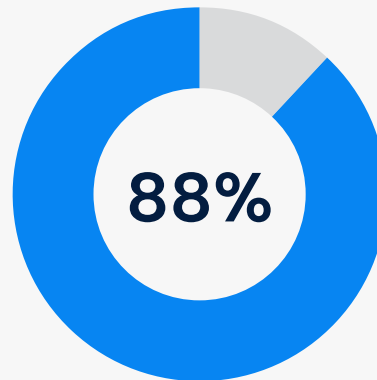
ICF worked with the New York State Department of Transportation to launch a ridesharing program in New York City and expand it statewide. Moving the 511NY Rideshare application to the cloud allowed us to integrate member engagement data with the rideshare database. The new, optimized user experience reached 4 million commuters, resulting in more than 181,000 metric tons of CO<sub>2</sub> averted through the reduction of single-occupancy vehicle use.

[Read the story](#)

## Overcoming barriers

While technological issues must certainly be taken into consideration when assessing why digital modernization efforts are derailed at federal agencies, there are several systemic barriers. Leadership should set the tone every step of the way of the digital modernization journey, steering the organization away from a traditional business approach to a digital-first mindset. It is their responsibility to set the goals, ensure everyone knows their roles, and buys in. Mission leaders cite lack of clear vision from leadership (39%) and a culture that is resistant to change (38%) as key reasons their agency's digital modernization efforts fail.

Federal program domain experts can identify and eliminate roadblocks to successful digital modernization efforts and facilitate communication between technical teams and other stakeholders. These professionals have specialized knowledge or skills in a particular application area and know the project's technical requirements—while also understanding the goals, challenges, and needs of the clients. Yet surprisingly, IT professionals report nearly a third of their agency's digital modernization efforts (32%), on average, do not include a domain expert in addition to IT specialists and data scientists.



of IT professionals report that digital modernization efforts that do not include a domain expert are doomed to fail

Aligned with the organization's internal vision for the modernization, domain experts are indispensable strategic partners and failure to include them in the process may virtually guarantee the collapse of the project. An overwhelming 88% of IT professionals report that digital modernization efforts that do not include a domain expert are doomed to fail.

Domain experts enable everyone on the project teams to do their jobs better, which includes functioning as more strategic partners across their organizations. The latter is essential to identifying and minimizing problems that threaten the success of the project. More than half of data and analytics professionals see budget overruns (53%), and delays in project implementation (51%) among the consequences of not including a domain expert.

Ultimately, failure means being unable to meet citizens' expectations of government digital service that is at minimum on par with that offered by commercial organizations. An astounding 62% of data and analytics professionals cite tech solutions not meeting the end-user's needs as a possible consequence of taking on modernization projects without having a domain expert to bring it all together.

## Conclusion

Successful digital modernization and effective mission execution are built on a foundation of high-quality, accurate data that is used to better inform decisions. Technological solutions can get that data into the hands of those who need it most to make an impact.

But modernization efforts require more than upgraded infrastructure and generalized data access to be successful. Agencies seeking to improve collaboration between technologists and domain experts—program managers, researchers, health experts, and more—must optimize data management and equip users with the proper tools to maximize utilization. Success hinges on those with critical expertise having the data skills, access, and tools they need to execute modernization initiatives effectively.

The same applies when taking advantage of new technologies, such as AI. While agencies feel prepared, there are staffing needs and challenges to fully adopting AI that still require a plan of action. Agency leaders need knowledge and support to properly navigate these challenges and oversee strategies—such as automation in data and model validation—that are essential to responsibly bringing AI to market.

### Key survey takeaways:

- **Pairing domain and IT skills is vital to success.**
- **Achieving high data and model quality should remain the guiding principle.**
- **Leveraging AI is mission critical.**

The future of government will depend on being nimble enough to adapt to the continuous changes in technology. Federal agencies once led the way in technology use and can now return to the cutting edge through smart investment and execution of sound strategy.

## Study methodology

The ICF Digital Modernization Survey was conducted by Wakefield Research ([www.wakefieldresearch.com](http://www.wakefieldresearch.com)) among 500 federal employees, employed full-time, working in technology or IT-focused roles in one of 3 segments, IT professionals, data & analytics professionals, or mission leaders, between November 15th and November 30th, 2023, using an email invitation and an online survey. Quotas were set for a minimum of 100 respondents in each of the 3 segments.

Results of any sample are subject to sampling variation. The magnitude of the variation is measurable and is affected by the number of interviews and the level of the percentages expressing the results. For the interviews conducted in this particular study, the chances are 95 in 100 that a survey result does not vary, plus or minus, by more than 7.4 percentage points in Segment A, 7.3 percentage points in Segment B and 8.2 percentage points in Segment C, from the result that would be obtained if interviews had been conducted with all persons in the universe represented by the sample.







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